



CELEBRATING WOMEN IN MATHEMATICS

MARIE-SOPHIE GERMAIN

1776-1831, France - At the age of thirteen, Marie-Sophie Germain read an account of the death of Archimedes at the hands of a Roman soldier. She was moved by this story and decided that she too must become a mathematician. Sophie pursued her studies, teaching herself Latin and Greek.

Sophie obtained lecture notes for many courses from the École Polytechnique. At the end of Lagrange's lecture course on analysis, using the pseudonym M. LeBlanc, Sophie submitted a paper whose originality and insight led Lagrange to look for its



author. When he discovered that “M. LeBlanc” was a woman, his respect for her work continued and he became her sponsor and mathematical counselor. Sophie's education was however, disorganized and haphazard and she never received the professional training which she wanted.

However, Germain's most famous correspondence was with Gauss. She had developed a thorough understanding of the methods presented in his 1801 *Disquisitiones Arithmeticae*. Between 1804 and 1809 she wrote a dozen letters to him, initially adopting again the pseudonym “M. LeBlanc” because she feared being ignored because she was a woman. During their correspondence, Gauss gave her number theory proofs high praise, an evaluation he repeated in letters to his colleagues. Germain's true identity was revealed to Gauss only after the French occupation in 1806 of his hometown, Braunschweig.

Germain continued to work in mathematics and philosophy until her death. Before her death, she outlined a philosophical essay which was published posthumously as *Considérations générales sur l'état des sciences et des lettres* in the *Oeuvres philosophiques*. Her paper was highly praised by the French positivist Auguste Comte.

Biography courtesy of The MacTutor History of Mathematics archive